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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/776,086	02/02/2001	Gary S. Selwyn	S-91,756	9416

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EXAMINER

ZERVIGON, RUDY

ART UNIT	PAPER NUMBER
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1763

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DATE MAILED: 06/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/776,086

Applicant(s)

SELWYN ET AL.

Examiner

Rudy Zervigon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 18-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-15 is/are rejected.
- 7) ☐ Claim(s) 7, 8, 16 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 February 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-17, drawn to an apparatus (Fig.5,10) for processing materials, classified in class 118, subclass 718.
 - II. Claims 18-25, drawn to an apparatus (Fig.5,10) for processing materials, classified in class 118, subclass 723E.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are not disclosed as capable of use together and they have different modes of operation. In particular, the group I invention as shown in figures 1-3 has a different mode of operation as the group II invention as shown in figure 4. Comparison between page 12 and page 8 of the specification lends specific evidence.
3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Milton D. Wyrick on May 28, 2002 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-17. Affirmation of this election must be made by applicant in replying to this Office action. Claims

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18-25 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “ground enclosure” must be shown or the feature canceled from the claim. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 2 recite the limitation “said means for placing the material to be processed ”.

There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-6 and 9-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Woolley et al (USPat. 5,743,966). Woolley et al teaches:

9. Apparatus (Figure 1) for processing materials (18) in an AC-powered plasma comprising: an electrically conductive enclosure (26) defining an interior space with a surface and inlets for a gas (30,28) and for entry and exit of a material to be processed (see Figure); an electrode (14) spaced apart from the electrically conductive enclosure and capable of placing the material to be processed inside the interior space between the electrically conductive enclosure and the electrode, the material to be processed being in contact with the electrode (column 2, lines 50-55); wherein a gas introduced into the inlet for gas and an AC-powered voltage applied between the electrically conductive enclosure and the electrode creates a plasma (column 2, lines 45-55) in the interior space for processing the material to be processed as it passes through the electrically conductive enclosure.

10. The apparatus as described in Claim 9, wherein said electrode and said electrically conductive enclosure are cylindrically shaped – Figure 1.

11. The apparatus as described in Claim 9, wherein said electrode is a rotating roller (14') – Figure 1.

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12. The apparatus as described in Claim 9, wherein said gas is comprised of an inert gas and a chemically reactive gas – column 3, lines 4-13.

13. The apparatus as described in Claim 12, wherein said inert gas is helium and said chemically reactive gas contains oxygen – although Woolley et al does not specifically teach the use of helium gas as an alternative to argon gas, it is well established that how an apparatus is operated is not a patentable trait over prior art with identical structure. See MPEP 2114, 2144.05¹

¹ Boesch, In re, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over John D. Fales (USPat. 3,959,104) in view of Wooley et al (USPat. 5,743,966). Fales teaches:

1. An apparatus (Fig.5,10) for processing materials in a radio-frequency (122, Fig.10; "low frequency", column 4, line 49) plasma (column 4, lines 39-56) comprising: an electrically conductive enclosure (107, Fig.10) defining an interior space with a surface and openings for introduction of a gas (109; Fig.10) and for entry (102; column 7, lines 1-22) and exit (110) of a material (101) to be processed; an electrode (106abc; 105abc; column 7, lines 1-22) situated inside the interior space and spaced apart from the surface of the interior space a distance sufficient to allow placement of the material to be processed (Fig.10, 5); a mechanical action (104; column 7, line 8) for placing the material to be processed inside the interior space between the electrode and the electrically conductive enclosure (107, Fig.10; column 9, lines 9-15); wherein a gas is introduced into the interior space through the opening for introduction of a gas (column 9, lines 29-35).

2. The apparatus as described in Claim 1, wherein the means for placing the material to be processed comprises a roller (104; column 7, line 8).

3. The apparatus as described in Claim 1, wherein the gas is comprised of an inert gas and a chemically reactive gas (column 9, lines 29-35).

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4. The apparatus as described in Claim 1, wherein the gas is introduced at low flow rate (108/109; Fig.10).
5. The apparatus as described in Claim 3, wherein the inert gas is helium and the chemically reactive gas contains oxygen (column 9, lines 29-35).

John D. Fales does not teach a radio frequency voltage with a frequency of 13.56MHz. John D. Fales also does not teach atmospheric pressure operation of the plasma apparatus. Fales also does not teach a radio frequency voltage (122) applied between the electrically conductive enclosure and the electrode. However, Fales does discuss the positioning of the powered lines across the conductive enclosure (column 9, lines 9-14).

Wooley et al teaches a similar apparatus (Fig.1) for processing materials in an AC power (Fig.1) plasma (column 2, lines 53-65) comprising: an electrically conductive enclosure (26, Fig.1) defining an interior space with a surface and openings for introduction of a gas (28, 30; Fig.1) and for entry and exit of a material (18) to be processed; an electrode (14) situated inside the interior space. Specifically, Wooley et al teaches an AC power applied between the electrically conductive enclosure and the electrode.

Wooley et al does not teach a radio frequency voltage with a frequency of 13.56MHz. Wooley et al also does not teach atmospheric pressure operation of the plasma apparatus.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the Wooley et al teaching of an AC power applied between the electrically conductive enclosure and the electrode (Fig.1) as part of the John D. Fales apparatus.

Motivation for implementing the Wooley et al teaching of an AC power applied between the electrically conductive enclosure and the electrode as part of the John D. Fales apparatus is drawn to the teachings of Wooley et al whereby "web tension" control loss due to the web sticking to the drum is alleviated in part by plasma flow control and generation by the powering configuration of Wooley et al.

Although John D. Fales and Wooley et al each do not teach a radio frequency voltage with a frequency of 13.56MHz and atmospheric pressure operation of the plasma apparatus, it would be obvious to one of ordinary skill in the art at the time the invention was made to vary the alternating current frequency and gas pressures as process parameters under normal operation. Further, it is well established that how an apparatus is operated is not a patentable trait over prior art with identical structure. See MPEP 2114, 2144.05².

13. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Woolley et al (USPat. 5,7432,966) as applied to claims 9-14 above, and further in view of no additional references. Woolley et al does not teach a radio frequency voltage with a frequency of 13.56 Megahertz. Although Woolley et al each do not teach a radio frequency voltage with a frequency

² Boesch, In re, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)

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of 13.56MHz, it would be obvious to one of ordinary skill in the art at the time the invention was made to vary the alternating current frequency as a process parameter under normal operation. Further, it is well established that how an apparatus is operated is not a patentable trait over prior art with identical structure. See MPEP 2114, 2144.05³.

³ Boesch, *In re*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)

Allowable Subject Matter

14. Claims 7, 8, 16, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPat. 5,258,074; 5,464,667; 5,180,433; 5,224,441; 5,364,481; 6,054,018; 5,595,792; 6,044,792; 6,367,411; 5,053,246.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.


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